Amendments to the Drawings:

The attached replacement drawing sheets makes changes to Figs. 1, 2, 8, 9, 14 and 15, and replace the original sheets with Figs. 1, 2, 8, 9, 14 and 15.

Attachment: Replacement Sheets

REMARKS

Claims 1-12 are pending in this application. Claims 10-12 are withdrawn. By this Amendment, claims 1, 2, 7 and 9 are amended. Figs. 1, 2, 8, 9, 14 and 15 are also amended. Further, the specification is amended to correct minor informalities. No new matter is added.

In paragraph 13, on page 12, the Office Action indicates that claim 7 would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. Applicants appreciate this indication of allowability but submit that claim 1, the claim from which claim 7 depends, is allowable for the reasons discussed below.

In paragraph 4, on page 5, the Office Action objects to the drawings because of informalities. The objection is respectfully traversed.

Figs. 1, 2, 9, 14 and 15 are amended to label the reference boxes as specified in the Office Action. The specification is amended to delete reference to Figs. 20A and 20B and clarify that reference is to Fig. 20. Thus, it is respectfully requested the objection be withdrawn.

In paragraphs 5 and 6, on page 6, the Office Action objects to the drawings under 37 C.F.R. §1.84(p)(5). The objection is respectfully traversed.

Fig. 15 is amended to delete reference numeral 24 and add reference numeral 2, responsive to the objection. The specification is amended to describe the "YES" and "NO" conditions relating to step ST207, as shown in Fig. 7, responsive to the objection. The specification is also amended include the reference designation ST53, as shown in Fig. 11, and to describe the "YES" and "NO" conditions relating to step ST53 shown in Fig. 11, responsive to the objection. Fig. 8 is amended to delete reference characters "H" and "G." Thus, it is respectfully requested the objection be withdrawn.

In paragraphs 8 and 9, on page 8, the Office Action objects to the specification because of informalities. The specification is amended as noted in the Office Action. Thus, it is respectfully requested the objection be withdrawn.

In paragraph 11, on page 8, the Office Action rejects claims 1-6, 8 and 9 under 35 U.S.C. §102(b) over Ogihara et al. (Ogihara), EP 858015. The rejection is respectfully traversed.

Applicants' claim 1 recites a surface profile measuring instrument for measuring a surface profile of a workpiece, comprising a probe having a stylus provided with a measuring portion for measuring a surface of a workpiece at a tip end thereof and a detector for outputting a detection signal which varies depending on a measurement condition between the surface of the workpiece and the measuring portion; a scanning mechanism for relatively moving the measuring portion along the surface of the workpiece; a sampling unit that samples linear position information of the measuring portion when the detection signal reaches a predetermined reference signal value; a response variation factor calculator for calculating a response variation factor based on the linear position information of the measuring portion when the detection signal reaches the reference signal value, the response variation factor applying variation to a response of the detection signal from the surface of the workpiece; and a profile processor that corrects the linear position information to obtain an actual profile of the surface of the workpiece using the response variation factor. Ogihara fails to disclose or suggest all of these features.

Ogihara fails to disclose or suggest a response variation factor calculator for calculating a response variation factor based on the linear position information of the measuring portion when the detection signal reaches the reference signal value, the response variation factor applying variation to a response of the detection signal from the surface of the workpiece, as recited in Applicants' claim 1. Ogihara only discloses a correction of

measurement error caused on account of relative movement velocity between the probe and the workpiece (Abstract; page 3, lines 37, 38 and 43-46; page 7, lines 19, 20 and 29-35). Thus, Ogihara is directed to a correction of measurement error caused on account of relative movement velocity between a probe and a workpiece rather than Applicants' response variation factor which is used to eliminate profiling error caused on account of positional relationship between the workpiece and the probe. Thus, because Ogihara fails to disclose or suggest a response variation factor calculator for calculating a response variation factor based on the linear position information of the measuring portion, Ogihara fails to disclose or suggest all of the features of Applicants' claim 1.

Further, because claims 2-6 and 8 incorporate the features of claim 1, Ogihara fails to disclose or suggest the features of any of these claims for the reasons discussed above and for the additional features recited therein.

Claim 9 recites calculating a response variation factor that applies variation to the detection signal from the surface of the workpiece based on the linear position information of the measuring portion when the detection signal reaches the reference signal value. For the reasons discussed above, Ogihara fails to disclose or suggest calculating a response variation factor that applies variation to the detection signal from the surface of the workpiece based on the linear position information of the measuring portion. Thus, Ogihara also fails to disclose or suggest all of the features of Applicants' claim 9.

Therefore, it is respectfully requested the rejection be withdrawn.

In paragraph 12, on page 10, the Office Action rejects claims 1, 2, 4, 6, 8 and 9 under 35 U.S.C. §102(b) over Matsuki et al. (Matsuki), U.S. Patent No. 6,307,084. The rejection is respectfully traversed.

Matsuki discloses an alternative solution for eliminating error caused by variation in probe restriction in accordance with the contact relationship between the probe and the

workpiece. However, Matsuki's solution includes a rotary movement generator 30 that measures rotary movement of the probe to determine the contact position of the probe against the workpiece surface (col. 3, lines 1-36, col. 7, lines 8-15). The rotary movement generator 30 includes a driving mechanism 31, a rotational controller 33, and an X-axis driving section 311 and a Y-axis driving section 312. Because these additional components are necessary for detecting the contact position of the probe, the entire structure becomes complicated and measurement speed may be lowered. Applicants' claimed invention does not suffer from these problems.

Further, the contact location detection mechanism of Matsuki operates by detecting rotational position of the stylus 102 during the scanning (col. 7, lines 31-35). A phase value detector 50 outputs the detected rotation position θ of the stylus 102 to a contact location detector 70. The contact location detector 70 receives the detection signal value and calculates a position of a contact portion 102A of the stylus 102 based on the detection signal value and the rotation position θ of the stylus 102 sent from the phase value detector 50 (col. 7, lines 35-45, col. 8, lines 1-8).

On the other hand, Applicants' invention of claim 1 includes a sampling unit that samples linear position information of the measuring portion when the detection signal reaches a predetermined reference signal value, a response variation factor calculator for calculating a response variation factor based on the linear position information of the measuring portion when the detection signal reaches the references signal value, the response variation factor applying variation to a response of the detection signal from the surface of the workpiece, and a profile processor that corrects the linear position information to obtain an actual profile of the surface of the workpiece using the response variation factor.

Thus, because Matsuki relies on rotational position rather than linear position, Matsuki fails to disclose or suggest all of the features of Applicants' claim 1.

Further, because claims 2, 4, 6, 8 incorporate the features of claim 1, Matsuki fails to disclose or suggest the features of any of these claims for the reasons discussed above and for the additional features recited therein.

Claim 9, in part, recites sampling a linear position information of the measuring portion when the detection signal reaches a predetermined reference signal value, calculating a response variation factor that applies variation to the detection signal from the surface of the workpiece based on the linear position information of the measuring portion when the detection signal reaches the reference signal value, and correcting the linear position information using the response variation factor to obtain an actual profile of the surface of the workpiece. Thus, Matsuki also fails to disclose or suggest all of the features of Applicants' claim 9.

Therefore, it is respectfully requested the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-9 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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JAO:DRK/smo

Attachment:
Replacement Sheets (6)

Date: April 7, 2006

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